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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/646,402	08/22/2003	Martin Kiesel	1140668-0015 CON	9503

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EXAMINER

CABRERA, ZOILA E

ART UNIT	PAPER NUMBER
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2125

DATE MAILED: 08/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/646,402	Applicant(s) KIESEL ET AL.	
	Examiner Zoila E. Cabrera	Art Unit 2125	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 November 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>11/16/05</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Final Rejection

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-25 are pending.

The rejections regarding claims 1-25 are maintained.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-13, 15-22, 24-25 are rejected under 35 U.S.C. 102(b) as being anticipated by **Haseley et al. (US 5,602,757)**.

Haseley discloses an electronic fingerprint apparatus for a machine, comprising:

- an automation component comprising a controller for controlling movements of at least one component of the machine (Col. 5, lines 17-26, i.e., action commands may be generated by the microcontroller to a monitored machine), the automation component adapted for capturing electronic fingerprints representative of a state of the machine (Col. 5, lines 4-9; Col. 7, lines 14-17 and lines 23-28, i.e., vibration signatures are generated from collected vibration data).

Please note that “signature” or “footprint” are measurements in a machine that are characteristic of and document the behavior, or vibration, of the machine, which is the definition of “electronic fingerprints” in Specification, Page 1 of the present invention; see also Col. 1, lines 17-20); and the automation component further comprising a fingerprint device for selecting for measurement a plurality of movements of the machine to generate an electronic fingerprint that is representative of a condition of the machine (Col. 3, lines 22-26, i.e., sensor to measure vibration; Col. 5, lines 22-30, i.e., each sensor provides vibration data to produce vibration signatures which are used to monitor fault conditions of the machine).

As for claims 2-6, **Haseley** discloses,

- the automation component is **selected from the group consisting of** a numeric control, a motion controller, a programmable logic controller **or** an intelligent drive (Col. 4, lines 11-15, i.e. vibration monitoring system);
- the automation component and the corresponding engineering system provide a program platform/environment for the implementation of electronic fingerprints by an application engineer (Col. 6, lines 57-61; Col. 6, lines 8-19);
- an engineering system corresponding to the automation component, wherein implementation of the fingerprints is done by **at least one of** a configuration process in the engineering system and a programming process using a specific API for the implementation of fingerprints (Col. 7, lines 13-16; Col. 4, lines 65-67);

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- the start of capturing the fingerprints is done by an action selected from the group consisting of starting by local user via local HMI and starting by remote user via Ethernet/Internet; and starting based on an event evaluated in an application program running in the automation component (Col. 7, lines 13-16; Col. 6, lines 7-19 and lines 33-40);
- the apparatus is used for a machine selected from the group consisting of machine tools, packaging machines, a rubber-working machines; plastic-working machines; printing presses; woodworking machines; glassmaking machines; ceramic-working machines; stoneworking machines; textile machines; robotic manufacturing machines and material handling machines (Col. 3, lines 10-17).

As for claims 7 and 18, **Haseley** discloses,

- the fingerprint device and the automation component generate an electronic fingerprint that is generic to a type of machine tool that indicates a stable behavior of the machine tool (Col. 6, lines 50-53 and lines 22-28).

As for claims 8 and 19,

- the fingerprint device and the automation component generates an electronic fingerprint having a deviation from the stable behavior, thereby indicating an unstable behavior of the machine (Col. 6, lines 29-32 and lines 54-56; Col. 5, lines 22-30).

As for claims 9 and 20,

- the fingerprint device and the automation component generates a specific fingerprint of a particular production machine that is representative of a state of

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at least one the outputs of the particular production machine and the stable behavior of the machine (Col. 6, lines 22-28 and lines 50-53).

As for claims 10 and 21,

- a graphical user interface for displaying a graphical depiction of the electronic fingerprint (Col. 5, lines 1-4).

As for claims 11,

- the fingerprint device is adapted for generating a periodic electronic fingerprint that is developed from a snap shot of the state of the machine at a certain time (Col. 6, lines 57-58, i.e., vibration data is collected at user selected time intervals).

As for claims 12 and 22,

- an application for comparing the electronic fingerprints over time (Col. 7, lines 23-28 and lines 35-40).

As for claims 13 and 25,

- a memory for storing the electronic fingerprints as a database (Col. 7, lines 23-28, data memory 38).

As for claims 15 and 24,

- a remote communication capability that couples the machine to a remote processor (Col. 4, lines 28-37).

As for claim 16,

- the electronic fingerprint is downloaded over the remote communication to the remote processor (Col. 4, lines 28-37, i.e., communication between a remote

field monitor and the vibration monitoring system would allow transfer of vibration data).

As for claim 17, **Haseley** discloses a method for generating electronic fingerprints for measuring a state of a machine, the method comprising the steps of:

- selecting for measurement parameters associated with **at least one**-component of the machine (Col. 4, lines 59-65; Fig. 2, footprint or signature with parameters being frequency and velocity; Col. 5, lines 22-28; Col. 3, lines 24-26, sensors may be accelerometers or any other type of sensors used to measure vibration), that are representative of a condition of the machine (Col. 3, lines 22-26, i.e., sensor to measure vibration; Col. 5, lines 22-30, i.e., each sensor provides vibration data to produce vibration signatures which are used to monitor fault conditions of the machine); reading the parameters; and storing the read parameters (Col. 6, lines 65-67), thereby creating an electronic fingerprint representative of a condition of the machine (Col. 7, lines 13-16 and lines 22-28 and lines 35-40).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 14 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Haseley et al. (US 5,602,757)** in view of **Hays et al. (US 6,330,525)**.

Regarding claims 14 and 23, **Haseley** discloses the limitations of claims 1 and 17 above but fails to disclose the limitations of claims 14 and 23. However, **Hays** discloses such limitations as follows:

- a maintenance scheduler for scheduling maintenance of the machine based on a prediction of a failure of the machine based on the electronic fingerprint (Col. 10, lines 48-56; Col. 20, lines 13-22; Col. 6, lines 20-35, i.e., performance signatures).

Therefore, it would have been obvious to a person of the ordinary skill in the art at the time the invention was made to combine the vibration monitoring system of **Haseley** with the diagnosing system of **Hays** because it would provide an improved system wherein data may be used to provide maintenance and continuous monitoring of machine health (Col. 6, lines 16-35).

Response to Arguments

4. Applicant's arguments filed November 16, 2005 have been fully considered but they are not persuasive.

Regarding claims 1, 17, and 25, Applicants contend that **Haseley** does not disclose or suggest the recited "automation component" or that the recited functionality for capture of fingerprints, or for selecting for measurement a plurality of movements to generate an electronic fingerprint, be performed by the automation component. Examiner disagrees

because Haseley discloses that the microcontroller 20 correlates the state of the machine to be monitored with collected predetermined vibration signatures from a machine (Col. 5, lines 4-7). Haseley discloses that "spectral analysis performed at steps 56, 62, and 70 employs a fast Fourier transform algorithm **to obtain a vibration signature from collected vibration data generated by signals from the sensors 12 and 14...** In order to accurately perform predictive vibration monitoring, the vibration signatures generated by the fast Fourier transform algorithm are compared with the following: the benchmark vibration signatures stored in the data memory 38... ; and previously obtained vibration signatures" (Col. 7, lines 13-29; Col. 5, lines 4-9; Col. 7, lines 14-17 and lines 23-28, i.e., vibration signatures are generated from collected vibration data. Please note that "signature" or "footprint" are measurements in a machine that are characteristic of and document the behavior, or vibration, of the machine, which is the definition of "electronic fingerprints" in Specification, Page 4, [0016] of the present invention; see also Haseley, Col. 1, lines 17-20).

Conclusion

5. THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the

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shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning communication or earlier communication from the examiner should be directed to Zoila Cabrera, whose telephone number is (571) 272-3738. The examiner can normally be reached on M-F from 8:00 a.m. to 5:30 p.m. EST (every other Friday).

If attempts to reach the examiner by phone fail, the examiner's supervisor, Leo Picard, can be reached on (571) 272-3749. Additionally, the fax phones for Art Unit 2125 are (571) 273-8300. Any inquiry of a general nature or relating to the status of this application should be directed to the group receptionist at (703) 305-9600.

A handwritten signature in black ink, appearing to read 'Zoila', with a stylized flourish underneath.

Zoila Cabrera
Primary Examiner
7/27/06